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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/922,659	08/06/2001	Michale Sean Fee	7-4	9980

7590 04/01/2004

Docket Administrator  
Lucent Technologies Inc.  
600 Mountain Avenue  
P.O. Box 636  
Murray Hill, NJ 07974-0636

EXAMINER

CONNOLLY, PATRICK J

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 04/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/922,659

Applicant(s)

FEE ET AL.

Examiner

Patrick J Connolly

Art Unit

2877

HW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 7-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 15-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-6 and 15-19 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

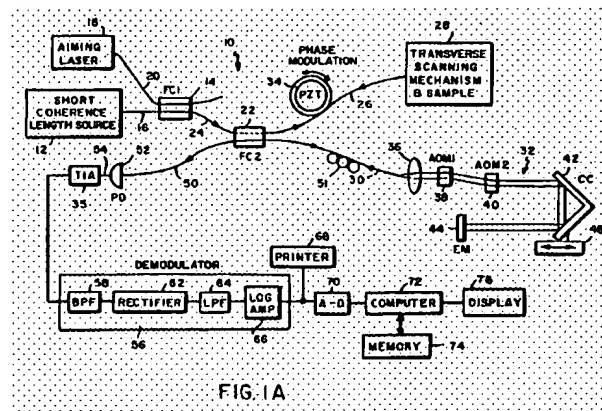
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,321,501 to Swanson et al. (hereafter Swanson '501) in view of U.S. Patent No. 5,956,355 to Swanson et al. (hereafter Swanson '355).

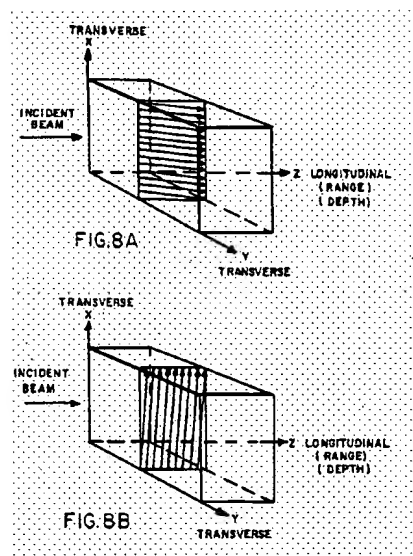
As to claims 1 and 15, Swanson '501 teaches a method and apparatus for monitoring an image or sample including (see Figure 1A below):

an optical interferometer comprising a measurement arm (28), a reference arm (32), and an optical splitter (22), the arms being coupled to receive light from the optical splitter and to output light that a portion of the interior of the sample produces in response to being illuminated by the measurement arm, the interferometer being configured to interfere the light outputted by the arms, one of the arms having an acousto-optical modulator to frequency shift the light therein; and

a detector (52) configured to make a measurement on the interfered light.



With further regard to claims 1 and 15, Swanson '501 teaches multi-dimensional scanning as a function of depth (see Figures 8A & B below).



Swanson '501 does not teach measuring the speed of the sample.

Swanson '355 teaches a method and apparatus for imaging a sample in multiple dimensions utilizing acousto-optic modulation (for example, see element 320 in Figure 6) including measuring relative motion of a sample with respect to a measurement system (see bottom of column 13-column 14) by use of Doppler shifting algorithms.

With further regard to claims 1 and 15, Swanson '355 teaches the advantages of acousto-optic modulation frequency shifting (see column 12).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the Doppler shifting technique and apparatus of Swanson '355 with the multi-dimensional acousto-optically modulated imaging technique of Swanson '501 in order to accurately determine the speed of samples of interest.

As to claims 3 and 16, Swanson '355 teaches determining the velocity or "signed displacement" of the portion of the sample (see column 14).

As to claims 4, 5 and 17, Swanson '501 teaches using an optical source with a coherence length of less than 10 micrometers (column 5, lines 52-54).

As to claim 6, Swanson '501 teaches a variable optical path length in the reference arm (see Figure 1A above, element 46).

As to claims 18 and 19, Swanson '501 teaches determining an image of the sample in the x and y directions as a function of depth (see Figures 8A and 8B above). Swanson '501 does not teach measuring the speed of the sample as a function of depth.

Swanson '355 teaches measuring the velocity of the sample relative to the measurement system (see discussion of claims 1 and 15 above).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the methods and apparatuses of Swanson '501 and Swanson '355 in order to accurately measure the sample's speed and image.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

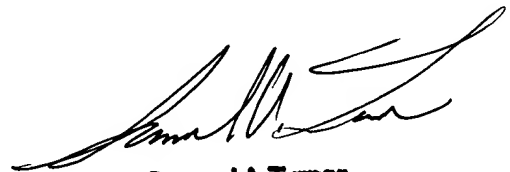
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J Connolly whose telephone number is 571.272.2412. The examiner can normally be reached on 9:00 am - 7:00 pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571.272.2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

pjc/pk  
3.24.2004



**Samuel A. Turner**  
Primary Examiner